

Airetool®

Model PATP 9000 Ram (5524902)
Model PATP 9400 P Hydraulic Pump (2999307)
Model PATP HT Hose Tube Assembly (5524903)



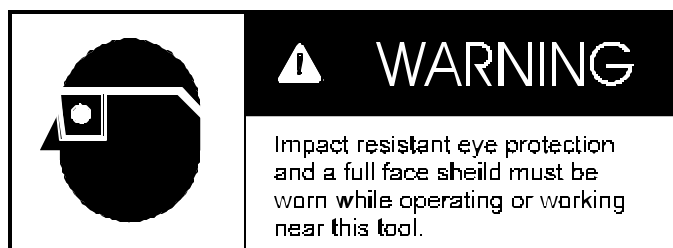
READ SAFETY RECOMMENDATIONS BEFORE OPERATING THIS TOOL

AIRETOOL OPERATION
302 South Center Street
Springfield, Ohio 45506

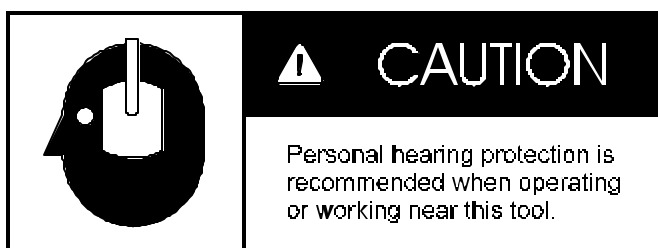
Safety Recommendations

WARNING: FOR YOUR SAFETY AND THE SAFETY OF OTHERS, READ AND UNDERSTAND THE SAFETY RECOMMENDATIONS AND OPERATING INSTRUCTIONS BEFORE USING THIS TOOL.

1. **KNOW YOUR POWER TOOL** – Read your operating and service manual carefully. Learn its applications and limitations as well as the specific potential hazards particular to this tool.
2. **DISCONNECT TOOLS** – when not in use, before servicing, when changing accessories such as grippers and draw rods, etc.
3. **AVOID AGAINST ACCIDENTAL STARTING** – Do not carry the tool with your finger on the switch. Be sure the shut off valve is in the off position before connecting the air supply to this tool.
4. **KEEP HANDS AWAY FROM ALL MOVING PARTS.**
5. **STAY ALERT** – Watch what you are doing and use common sense.
6. **ALWAYS WEAR PROTECTIVE EQUIPMENT:**

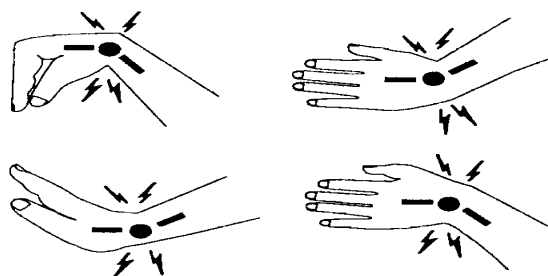


For additional information on eye and face protection, refer to Federal OSHA Regulations, 29 Code of federal regulations, Section 1910.133 eye and Face Protection, and American National Standards Institute, ANSI A87.1, Occupational and Educational Eye and Face Protection Z87.1 is available from the American National Standards Institute, 1430 Broadway Avenue, New York, NY 10018.



Hearing protectors are required in high noise areas, 85dBA or greater. The operation of tools and equipment in the area, reflective surfaces, process noises and non-resonant structures can substantially contribute to and increase the noise level in the area. For additional information on hearing protection, refer to Federal OSHA Regulations section 1910.95 Occupational Noise Exposure, and the American National Standards Institute, ANSI S12.6 Hearing Protectors.

Some individuals are susceptible to disorders of the hands and arms when exposed to task which involve highly repetitive motions or vibration. Those individuals predisposed to vasculatory or circulation problems may be particularly susceptible. Cumulative trauma disorders such as carpal tunnel syndrome and tendonitis can be caused by repetitions, forceful exertions of the hands and arms. These disorders develop gradually over periods of weeks, months, and years.



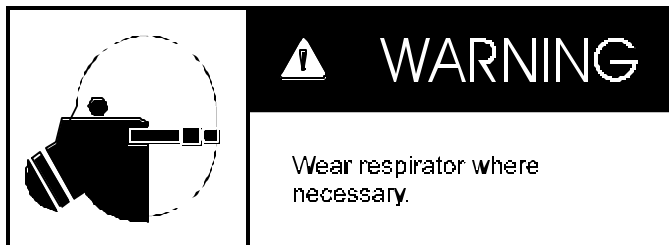
- Tasks should be performed in such a manner that the wrists are maintained in a neutral position which is not flexed, hyperextended, or turned side to side.
- Stressful postures should be avoided and can be controlled through tool selection and work location.

Any user suffering from prolonged symptoms of tingling, numbness, clumsiness or weakened grip, nocturnal pain in the hand or any other disorder of the shoulders, arms, wrists, or fingers is advised to consult with a physician. If it is determined that the symptoms are job related or aggravated by movements and postures dictated by the job design it may be necessary for the employer to take steps to prevent further occurrences. These steps might include, but are not limited to repositioning the workpiece or redesigning the work station, reassigning workers to other jobs, rotating jobs, altering work pace, and / or changing the type of tool used so as to minimize stress on the operator. Some task may require more than one type of tool to obtain the optimum operator/tool/task relationship.

The following recommendations will help reduce or moderate the effects of repetitive work motions and/or extended vibration exposure.

- Use a minimum hand grip force consistent with proper control and safe operation.
- Keep wrist as straight as possible.
- Keep body and hands warm and dry.
- Avoid anything that inhibits blood circulation
 - Smoking tobacco
 - Cold temperatures
 - Certain drugs
- Avoid highly repetitive movements of hands and wrist, and continuous vibration exposure.

Follow good machine shop practices. Rotating shafts and moving components can entangle and entrap, and can result in serious injuries. Never wear long hair, loose fitting clothes, gloves, ties, or jewelry when working with or near the equipment.



Use of this tool may produce hazardous fumes, particles and/or dust from the tube or vessel they are being extracted from. To avoid adverse health effects utilize adequate ventilation and/or a respirator. Read the material safety data sheet of any fluids or other materials involved in the tube removal process.



Model PATP 9400 Ram (5524902)

TOOL SPECIFICATIONS:

Maximum Operating Pressure - 10,000 PSI (650 Bar)

Pulling Capacity @ 10,000 PSI (690 Bar) - 13 3/4 Tons (12.5 Metric Tons)

Pulling Stroke - 2-3/8" (60 mm)

Length - 23 3/8" (594 mm)

Side to Center Distance - 3 5/8" (92.1 mm) Approx

Tube Pulling Capacity - 5/8" thru 1" OD (16 thru 25 mm)

United States

Cooper Power Tools

Airetool Operation

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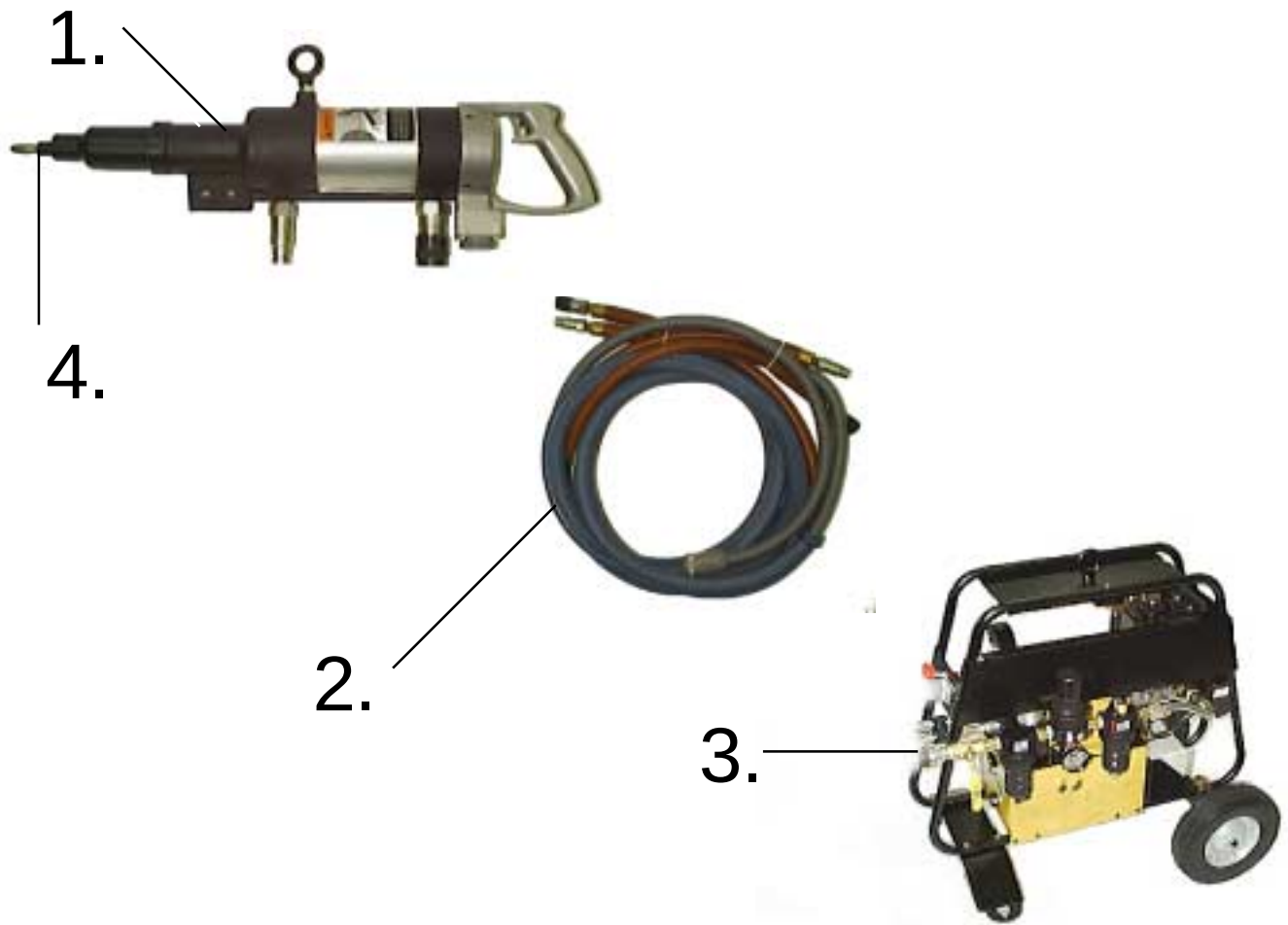
The Netherlands

Phone: 31-10-4588722 – Fax 31-10-4587173

Telex: INBV NL



Model PATP-9000 Hydraulic Tube Puller



Tube Pulling System Complete

Consists Of :

1.	PATP 9000	Ram Assembly	5524902
2.	PATP 9400 P	Hydraulic Pump Unit	2999307
3.	PATP HT	Hose-Tube Assembly	5524903
4.	ATP 9022 XXX	Gripper Kit (XXX See Chart On Page 14)	

OPERATING & SERVICE INSTRUCTIONS FOR Model PATP-9000 TUBE PULLER

THIS SYSTEM IS CAPABLE OF GENERATING 13 3/4 TONS OF FORCE AT 10,000 PSI, THEREFORE, DO NOT OPERATE THIS SYSTEM BEFORE FULLY READING AND UNDERSTANDING THE SET-UP AND OPERATING INSTRUCTIONS.

ALWAYS WEAR EYE PROTECTION WHEN USING THIS EQUIPMENT.

BEFORE STARTING THE PUMP UNIT

1) To avoid possible serious injury to personnel or equipment, always post DANGER SIGNS (Part. No. 2987064) and insure that the area directly behind the tube sheet/bundle is kept clear and that a suitable barrier is in use while using the puller. If a draw rod should break while pulling tube stubs or tubes, the draw rod tip, cam and expansion nut can be propelled out into this area with considerable force.

2) Make sure the vented filler cap/fill gauge is installed.

3) Check oil level (see pump manual # 90120-IM).

4) Check hose for leaks, cuts, abrasions or bulges—read and fully understand the warning tags attached to the hose assemblies. Check hose's label and fittings for underrated replacement parts. NEVER operate with damaged hoses and/or cords. NEVER allow hoses and/or cords to kink or knot. NEVER place hoses in an area where they may be stepped on or run over by any type of vehicle, cart, hand truck, etc. NEVER connect any hydraulic fitting, hose or device to the hydraulic portion of the pump that does not carry a 10,000 psi rating.

5) Make sure all hose and control tube connections are fully coupled.

6) Check air supply for sufficient capacity (see pump unit nameplate). Note: A 1/2" ID x 10' long supply hose is recommended. If a longer hose is required, 3/4" ID or larger will provide best performance. The use of quick disconnects will decrease performance unless they are sufficiently oversized or of an unrestricted flow type.

GRIPPER SELECTION:

Grippers are sized for nominal ID/OD brass tubes rolled with normal wall reduction in tube sheet holes with normal clearance. Tubes with smaller than normal rolled ID's may require the use of a smaller gripper for smooth release of the tube after pulling. Tubes with larger ID's may require the use of a larger gripper to avoid the excessive bending of the gripper and prolong gripper life. For determining the most suitable gripper, it is recommended that the tube's

rolled section be measured with an AIRETOOL Tube Gage. See Gripper Selection chart on Page 14.

DRAW ROD-EXPANSION NUT- LOCK NUT SELECTION:

These three components must match the gripper chosen (if necessary a second expansion nut may be used instead of a lock nut). See *Gripper Selection* chart on Page 14.

NOSE BUSHING SELECTION:

The bushing ID must be large enough to clear the tube OD (including flared or belled ends), and the bushing OD must be small enough so that it does not interfere with adjacent tubes protruding from the tube sheet. Standard nose bushings accommodate tubes that have not been flared or belled.

NOTE: It may be necessary in some applications where the tubes are brittle and/or if the grippers are positioned over tube sheet serrations (grooves), to shorten the nose bushing to allow the grippers to seat further into the tube sheet. Care must be taken that the cut be smooth and square to avoid gripper breakage. Since the bushing is case-hardened, a lathe with carbide tooling is recommended.

Standard Nose Bushing sizes:

SIZE	I.D.	O. D.
5/8 "	11/16 "	29/64 "
3/4 "	7/8 "	1 1/8 "
7/8 "	31/32 "	1 11/64 "
1 "	1 3/16 "	1 5/16 "

GRIPPER KIT INSTALLATION

Lubricate the threads of the draw rod with an anti-galling compound, thread the draw rod into the piston rod and snug with a wrench. Thread proper size gripper adapter (2) into the outside piston. With the two O-rings in place, slide the gripper complete (3 segments) over the draw rod such that the segments are aligned and spaced by the adapter lugs and retained with the proper sized gripper retainer (1) tightened securely. Lubricate the cam and thread the cam and lock nut onto the end of the draw rod until the cam contacts but does not expand the gripper—see *Gripper Adjustment* below.

SETTING UP THE EQUIPMENT

Connect the pump to an adequate air supply with appropriate hoses. Inadequate air supply can cause poor pump performance and prevent the pulling of some tubes. Make sure that the work area is arranged to provide adequate room for movement and protection of the supply and operation hoses. Make sure that the *vented* filler cap/level indicator is installed on the pump (see pump manual #90120-

OPERATING/SERVICE INSTRUCTIONS - c o n t i n u e d -

IM). Connect the hose /tube assembly to the pump and tube puller assembly. Hydraulic connections push together until they snap. Control tube connections should be properly keyed and threaded securely.

When the pump motor is started, the ram will (if not fully forward) move to the full reset position, build enough pressure to trip an internal unloader, and then idle.

FULL SYSTEM PRESSURIZING OF THE RETURN HOSE AT THE RESET POSITION INDICATES A MALFUNCTION OF THE PUMP - immediately stop the motor by pushing the red button on the pump and/turning of the air shut-off valve and clear the malfunction before proceeding. Cycle the puller assembly several times to warm the system before setting the gripper.

GRIPPER ADJUSTMENT

Pull the trigger until the gripper starts to move (the draw rod moves about 3/8" first) to put the puller in the gripper-setting position. Turn the motor off (by pushing the red MOTOR STOP button on the pump) and measure the diameter of the back tooth. If it is not at least .020" larger than the ID of the tube to be pulled, adjust the expansion nut *in* until it is. Make sure that the correct gripper size is being used since over-expansion of an undersized gripper will decrease gripper life.

NOTE: Very hard tubes cannot be pulled in a conventional manner with this tool since the gripper teeth will slide instead of gripping into the surface of the tube. Tighten the lock nut against the expansion nut and confirm that the draw rod is tight. Install the nose bushing and lock it in place with one of the set screws.

SERVICE INSTRUCTIONS

Most hydraulic cylinders give relatively long life and good dependability when they are used within their design parameters. The use of approved clean hydraulic fluid is essential if good seal life is to be expected (see pump manual #90120-IM). It is also essential that care be taken when coupling the hoses to the cylinder and pump to avoid getting dirt or other contamination into the system where it could abrade the seals and cause them to leak.

DISASSEMBLY (Refer to the exploded view drawing on the following page for the item numbers referenced.) Note: All threaded components have right-hand threads.

HANDLE/LIMIT SWITCH REMOVAL

1. Clamp the puller upside down in a soft jaw vise so that the puller is securely held with the hydraulic connections pointed up.
2. Remove switch cover screws (6) and cover (8).
3. Remove the limit valve mounting screws (10).

4. Remove the handle mounting screw (41). Loosen the handle mounting set screws (38), and remove the handle assembly, tubing conduit (14) and limit valve (11) assembly, taking care not to damage the tubes when pulling them through the slot in the switch box.
5. Inspect the valve roller and arm for free operation and clean if necessary, or replace if damaged.
6. Carefully inspect the handle tubing for deterioration, damage or loose connections and replace if required.

CYLINDER DISASSEMBLY

It is strongly recommended that PATP cylinders be returned to Airetool for repairs involving removal of the cylinder plug. The following instructions are provided for use only by knowledgeable service personnel using appropriate facilities and equipment.

1. Remove the gripper retainer (1), gripper, draw rod, nose bushing, and gripper adapter (2).
2. Unscrew the nose bushing adapter (3).
3. Thoroughly clean all exposed surfaces of the puller with a suitable solvent and blow dry.

NOTE: All further operations must be performed in a thoroughly clean environment to avoid premature failure of the puller or pumping unit due to contamination.

4. Remove the hydraulic couplings (12 and 13) and drain out as much of the hydraulic fluid as possible.
5. Securely attach a heavy steel bar to the 1/4-20 threaded holes in the cylinder plug with three grade 8 cap screws and loosen the plug. The cylinder must be held securely toward the nose end of the cylinder and with the torque reacted against the suspension eye boss and *not the hose connections*.
6. Remove the cylinder plug and any hydraulic fluid remaining in the cylinder. Inspect the O-ring (33) and replace if out or worn.
7. Using a suitable drift to avoid damaging the rod threads, carefully press the piston assembly out of the case. Take care to catch the oil remaining below the piston assembly.
8. Pull the piston (29) assembly out of the outside piston (20) assembly.
9. Inspect the rod seal (25) and piston seals (24) for cuts or wear, but do not attempt to remove them unless replacement is intended. To remove a rod or piston seal, pull the seal away from the piston (or rod) and very carefully cut through the seal with a very sharp, thin blade, taking care to avoid scratching the piston or rod.
10. The valve plunger (30) and spring (31) can be removed from the piston (29) after unscrewing the set screw (32).
11. The valve seat (23) can be unscrewed from the outside piston (20) to remove the ball (22) and spring (21). The spring should be approximately 1 1/8" long. If it has

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deformed, replace it. Carefully inspect the ball and valve seat and replace if damaged.

12. The cylinder seal (15) can be removed from the cylinder case after removing the snap ring (16) (with long snap ring pliers).

RE-ASSEMBLY

NOTE: When assembling seals into parts or parts into seals, always lubricate with clean hydraulic fluid, O-Lube or petroleum jelly. Everything that comes in contact with the hydraulic fluid must be kept clean.

1. Install the cylinder seal (15) into the case (4) oriented as shown and retain with the snap ring (16).
2. The pin (28) is pressed into the piston (29).
3. Install rod and piston seals oriented as shown.
4. Install spring (21) ball (22) and valve seat (23) in outer piston (20) and tighten securely.
5. The piston rod (26) is screwed into piston (29) and secured with Loctite® 242.
6. Install valve plunger (30), spring (31) and set screw (32) in the piston (29) with the screw flush with the piston face and secured with 242 Loctite® or equal. Allow Loctite® to set and clean thoroughly.
7. With the spacer (27) over the pin (28), slide the piston assembly into the outside piston assembly with the pin going into the hole in the outside piston.
8. Install o-ring (33) in groove in the cylinder plug (34) and screw cylinder plug into case (4). Start the O-ring into the case with a blunt instrument to avoid pinching it. Securely tighten cylinder plug.
9. Loctite® (pipe sealant) couplings (12 & 13) to case (4). Note that the male coupler goes on the gripper end.
10. If the wiring harness has been removed, feed the trigger switch and wiring up through the receptacle hole and install receptacle (36) with screws (37). Feed the cord out through the wire conduit hole.
11. If the plunger replacement is required, screw the spring plunger (32) into the handle (40) from the front (using an installation tool engaged in the slots in the plunger end) so that the trigger bottoms out against the plunger body before it hits the bottom of its cavity in the handle and properly trips the switch when pulled fully.
12. Arrange the control tubing in the handle so that it will stay in the cavity (under the retaining pin) and insert gasket (49) into handle (40).
13. Feed tubing and conduit into limit valve box on case (4) and attach handle (40) to case with screw (41) making sure that no tubes get pinched and that the handle is aligned properly.
14. Tighten set screws (38).
15. Connect tubing to limit valve (11) as shown in connection diagram.
16. Install limit valve (11) assembly into case (4) with screws (10) as shown – leave screws loose enough to adjust

limit valve plate.

17. Connect the cylinder to a properly functioning ATP pump and hose/tube assembly.
18. With all personnel clear of the unit, connect the air supply and turn on the main air shut-off valve.
19. Adjust the limit valve so that it does not hiss, but any further actuation of the arm will start the hiss. Tighten the screws and test for proper sequencing of the unit with the trigger and proper adjustment of the limit valve.
20. Install limit switch cover (8) with screws (6).
21. Install a draw rod and check for proper cycling and check all connections for leaks before returning unit to service.

PULLING TUBES

1. Inspect the face of the tube sheet and tube ID's. Any chips, dirt or scale which would prevent the nose bushing from bearing squarely on the tube sheet or debris inside the tube that will prevent the grippers from biting into the tube material must be removed or the effectiveness and life of the grippers will be greatly reduced.

2. The puller assembly will pull itself square to the tube sheet as it starts its cycle; however holding the assembly reasonably square first will prolong gripper and draw rod life. Use of a suitable tool balancer or Model DAS tool positioner is recommended for reducing operator fatigue.

3. Never attempt to pull tubes at an angle to the tube sheet or serious injury to the operator and/or the equipment may result. If obstructions prevent proper in-line access to the tubes, extension assemblies are available to assist in pulling these tubes.

4. With the gripper kit installed and set, with hose/tube assembly properly connected, pump connected to an adequate air supply and the area behind the tube sheet and/or bundle cordoned off with warning signs displayed, turn on the air shut-off valve. With everything clear of the grippers, pull and hold the trigger. The ram will continue back until the trigger is released or the limit valve is tripped at the end of the stroke. The motor will continue to run until the red MOTOR STOP button on the pump is pushed (or the air is turned off).

5. Cycle the puller assembly several times to warm it up.

6. Insert the gripper into the tube to be pulled with the puller nose bushing pushed squarely against the tube sheet. Pull and hold the trigger.

7. After the tube pulls tight against the tube sheet, pull back lightly on the puller. When the tube pulls free, release the trigger and pull the stub/tube from the tube sheet as the puller assembly is retracting. The gripper will release the tube just before the puller resets fully. In some extreme

OPERATING/SERVICE INSTRUCTIONS - c o n t i n u e d -

cases, the gripper teeth may stick in the tube, but can usually be released by momentarily pulling the trigger for a short cycle outside the tube sheet.

8. If the puller assembly reaches the end of its useable stroke, it will automatically reverse, reset and stop. The trigger can be released at any time during the pulling portion of the cycle to immediately reverse the ram or it can be released without effect at any time after the puller has been reversed by the end-of-stroke switch but it must be released at the reset position before another cycle can be started. The pump motor starts when the trigger is pulled the first time, and remains running until the red MOTOR STOP pushbutton valve on the pump is pushed.

9. If the tube does not pull free with a single pull attempt (approx. 2-3/8" stroke), the gripper can be pushed forward into the tube for a second pull (this may become necessary in tube sheets thicker than the 2-3/8"). If additional pulls are required to break the tube free, tubular spacers may be used equal to the length of the tube protruding from the tube sheet.

10. When using spacers to make multiple pulls, care should be taken to avoid interference with adjacent tubes.

11. If the tubes break off in short sections (rings) instead of pulling free, the gripper teeth may need to be positioned further into the tube sheet. This can be accomplished by shortening the nose bushing on a lathe (Must be machined square. Carbide tooling recommended).

DO NOT ALLOW THE GRIPPERS TO BE POSITIONED BEHIND THE TUBE SHEET. This can result in equipment breakage and/or injury to personnel.

NOTE:

1. The puller will pull only as long as the trigger is held. Releasing the trigger will cause the puller to immediately retract fully and stop.
2. The trigger must be released with the puller fully reset before a new cycle can be started.
3. The cycle can be stopped at any point by turning the pump off.
4. Once a cycle has been started, the motor will run until it is turned off (red MOTOR STOP pushbutton valve on the pump unit).
5. The draw rod should always move (about 3/8") before the gripper moves at the beginning of a cycle and should always move (about 3/8") after the gripper stops at the end of its cycle (or less if self adjusting has occurred).
6. The weight of the puller assembly should always be supported by the operator, a balancer or a DAS unit and not by the gripper. Resting the puller on the grippers can cause the grippers and draw rod to bend and cause premature failure.

7. Allowing the unit to dwell at full pressure serves no purpose and can damage the equipment. Should overheating occur, turn the motor off and let the unit cool before attempting to pull more tubes. **IMPORTANT:** If the unit is not operating properly, DO NOT USE IT - see *Trouble Shooting* section or contact authorized AIRETOOL representative to correct the problem before using the equipment.

SHUTDOWN

After using the puller in a wet, dirty or corrosive area, always clean and oil the tube puller assembly and the gripper kit before putting the tool away or severe corrosion can occur. Removal of the gripper kit for prolonged storage is recommended. To further protect the working end of the piston, you can retract it fully and turn the motor off before storage. Note that you must release the trigger before releasing the red pushbutton on the pump, or the pump motor will restart.

PRINCIPLE OF OPERATION

Oil directed to the rod end of the cylinder assembly flows through the check valve in the outside piston (20) as long as the ball (22) is held off its seat (23) by the valve plunger (30). This causes the piston to retract, pulling the draw rod back and expanding the gripper. When the piston has moved about 3/8" away from the outside piston, the ball seats, trapping oil between the pistons and the two pistons move back as a unit, pulling both the gripper and the draw rod with no further expansion of gripper. When a tube is being pulled, the pressure between the pistons starts to rise as soon as the gripper starts to grip the tube, pushing the valve plunger (30) back against its spring (32). When enough pressure has built up to fully grip the tube, the valve plunger has been pushed back far enough to allow the check valve in the outside piston to seal off so that expansion stops and the tube is pulled by the gripper and not the draw rod. On the reset stroke, the outside piston stops when it bottoms out on the case. The oil between the pistons escapes past the ball in the outside piston. When the piston (29) bottoms out, the system pressure rises enough to trip the internal pump unloader and the pump shifts back to its idle position.

TROUBLE SHOOTING

SEE SERVICE MANUAL NUMBER 90120-IM FOR HYDRAULIC PUMP MODEL PATP-9400-P

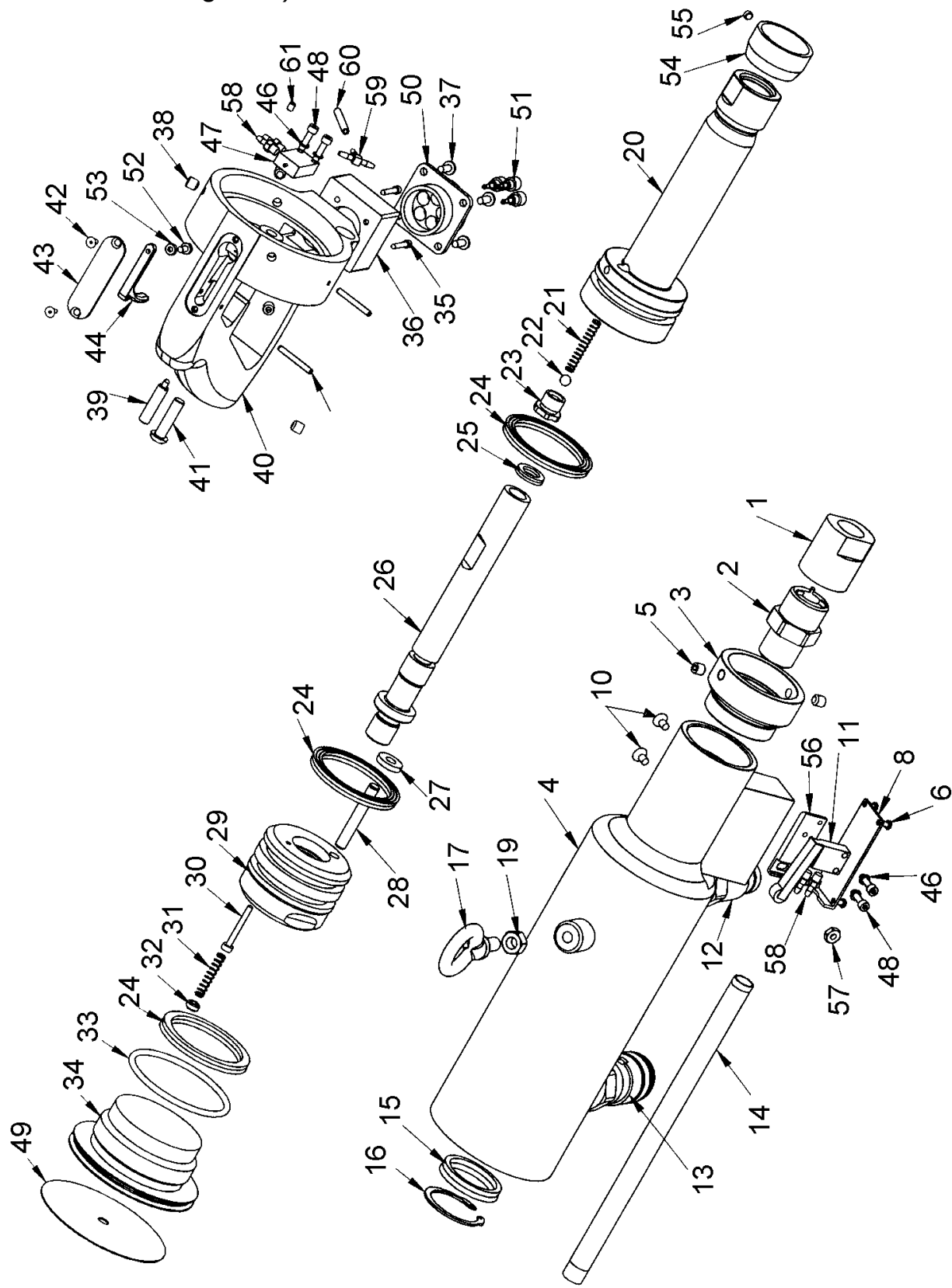
Gripper slips out of tube without gripping	1) Grippers worn out (teeth dull) - replace grippers. 2) Turn adjusting nut in for more gripper expansion 3) Check tube hardness - puller will not pull excessively work- or age- hardened tubes 4) Check valve spring (31) and screw (32) - replace if damaged or out of position.	Puller bottoms out and pressurizes on pull stroke but reverses when trigger is released. Puller will not move from the idle position.	1) Check limit valve - adjust the valve plate so that valve shifts only when on the cam. 2) Check for pinched tubes. 1) Make sure both ends of the tubing connectors and puller hoses are properly connected 2) Make sure trigger valve is functioning properly.
Excessive draw rod breakage	1) Check operator technique 2) If breakage continues with proper technique, check that valve ball (22) seats and that valve plunger (30) moves properly.	When first started after service, the puller retracts fully and stops with the pressure switch tripped instead of going into reset (or staying in idle.).	Check hose, pump and puller couplings. PUMP - left is female, right is male.
Pump will not build enough pressure to pull (under 10,000psi)	1) Make sure vented filler cap level gage is installed on pump. 2) Check oil level (within green zone-see pump manual). 3) Check air pressure with pump under load. Air supply and supply hose must have enough capacity to run pump without excessive pressure drop. 4) If pump requires servicing see ENERPAC literature for location of nearest ENERPAC service center.		HOSES – one male and one female on each hose. PULLER – male in front and female in back.

- C A U T I O N -

DO NOT ATTEMPT TO DISCONNECT OR DISASSEMBLE HOSES, PULLER OR VALVE WHILE THEY ARE PRESSURIZED OR SERIOUS INJURY COULD RESULT. THE UNIT CAN NORMALLY BE DEPRESSURIZED BY TURNING OFF OR DISCONNECTING THE AIR SUPPLY. IF THIS IS NOT EFFECTIVE, DEPRESSURIZE BY LETTING THE ASSEMBLED UNIT SIT (WITH THE AIR DISCONNECTED) UNTIL THE PRESSURE BLEEDS OFF. TO DEPRESSURIZE A DISCONNECTED COMPONENT, SHROUD THE JOINT AND **SLOWLY** UNSCREW A FITTING UNTIL PRESSURE IS RELIEVED. ALWAYS KEEP THE FITTING WELL AWAY FROM ANY BODY CONTACT AND WEAR EYE PROTECTION.

NOTES:

Model PATP-9000 (5524902)
Hydraulic Ram
(See Parts List Page 13)

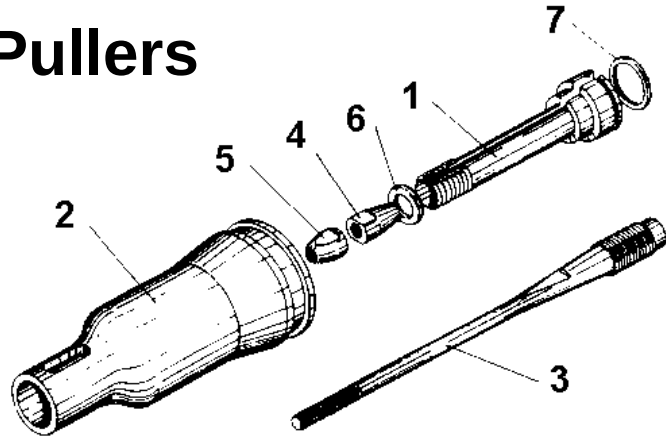


PARTS LISTING FOR PATP-9000 RAM (See Drawing Page 12)

ITEM	PART #	DESCRIPTION	REQ'D
1	2991214	ATP 9012 5/8 3/4 GRIPPER RETAINER	1
1	2991236	ATP 9033 7/8 1 GRIPPER RETAINER	1
2	2991213	ATP 9011 5/8 3/4 ADAPTER	1
2	2991235	ATP 9032 7/8 1 ADAPTER 7/8 1	1
3	2991231	ATP 9026 7/8 1 ADAPTER 7/8 1	1
4	2991190	ATP 9001 CYL CASE ASSEM	1
5	8010204	1/4 20 X 1/4 NYLOK SET SCREW	2
6	8010210	4 40 X 1/4 BUTTON HD SCREW	4
8	2999063	ATP 9029 B SWITCH COVER	1
10	8010912	8 32 X 5/16 FHCS 18 8	2
11	2999066	PATP 3 LIMIT VALVE	1
12	2995267	HDP 30 13A NIPPLE SFWY	1
13	2995268	HDP 30 14A COUPLER SFWY	1
14	2991234	ATP 9031 WIRE CONDUIT	1
15	2991229	ATP 9020 CYLINDER SEAL	1
16	8010497	5008 150 SNAP RING	1
17	8564870	1700 32 SUPPORT EYELET	1
19	8010029	5/16 18 HEX NUT	1
20	2991195	ATP 9002 OUTSIDE PISTON	1
21	2991208	ATP 9006 CHECK VALVE SPRING	1
22	3227500	1/4 STEEL BALL	1
23	2991207	ATP 9005 VALVE SEAT	1
24	2991228	ATP 9019 PISTON SEAL	3
25	2991230	ATP 9021 ROD SEAL	1
26	2991193	ATP 9004 PISTON ROD	1
27	2991210	ATP 9008 SPACER	1
28	2991209	ATP 9007 PIN	1
29	2991194	ATP 9003 PISTON	1
30	2991211	ATP 9009 VALVE PLUNGER	1
31	2991212	ATP 9010 REG VALVE SPR	1

ITEM	PART #	DESCRIPTION	REQ'D
32	8010496	5/16 24 HOLO LO HOLO LOK SET SCREW	1
33	2983298	ATS 8825 O RING	1
34	2983310	ATS 8814 CYLINDER PLUG	1
35	8010914	4 40 X 1/2 SHCS	4
36	2999068	PATP 5 ADAPTER	1
37	8010915	M4 X 10 PHMS DIN 85A	4
38	8010204	1/4 20 X 1/4 NYLOK SET SCREW	4
39	2983330	1/4 20X3/16 STROKE SPRING PLUNGER	1
40	2991253	ATP 9044 HANDLE	1
41	8010209	1/4 20 X 1 BUTTON HD SCREW	1
42	8010222	4 40 X 1/4 FLAT HD CAP SCREW	2
43	2983286	ATS 8818 TRIGGER COVER	1
44	2983283	ATS 8817 TRIGGER	1
45	8010206	1/8 X 1 DOWEL PIN	2
46	8010084	#6 LOCK WASHER	4
47	2999067	PATP 4 HANDLE VALVE	1
48	8010357	6 32 X 1/2 SOC HD CAP SCREW	4
49	2983300	ATS 8815 GASKET	1
50	2999069	PATP 6 BOX CONNECTOR	1
51	2999070	PATP 6 I CON INSERT	3
52	8010913	6 32 X 1/4 HHMS 18 8	1
53	8010500	6-32 X 1/4 HEX NUT	1
54	2999065	PATP 2 VALVE CAM	1
55	8009100	10 32 X 1/8 SOC SET SCREW	1
56	2999064	PATP 1 VALVE PLATE	1
57	8010083	8 32 HEX NUT	1
58	2999244	PATP 10 3/32 TUBE BARB	4
59	2999245	PATP 11 3/32 TUBE TEE	1
60	2999246	PATP 12 3/32 ID TUBING	3.5
61	8007100	6-32 X 3/16 SOC SET SCREW	1

GRIPPER KITS & COMPONENTS FOR Airetool Models ATP & PATP Semi-Automatic Tube Pullers



GRIPPER KITS AND COMPONENTS

For Models ATP and PATP Tube Pullers

TUBE SIZE		* GRIPPER	** GRIPPER	*** GRIPPER	NOSE	DRAW	EXPANSION	LOCK	FRONT	REAR
O. D.	GAGE	SEGMENT	COMPLETE	KIT	BUSHING	ROD	NUT	NUT	"O" RING	"O" RING
5/8 "	16-18	2991196	5520793	5520782	2991245	2991237	2991238	2991239	3105400	3094500
	20-22	2991197	5520794	5520783	"	"	"	"	"	"
3/4 "	14-15	2991198	5520795	5520784	2991218	2991244	2991226	2991227	"	"
	16-18	2991199	5520796	5520785	"	"	"	"	"	"
	20-22	2991200	5520797	5520786	"	"	"	"	"	"
7/8 "	12-14	2991201	5520798	5520787	2991232	2991240	2991241	2991242	3010453	3220900
	16-18	2991202	5520799	5520788	"	"	"	"	"	"
	20-22	2991203	5520800	5520789	"	"	"	"	"	"
1 "	12-14	2991204	5520801	5520790	2991244	"	"	"	"	"
	16-18	2991205	5520802	5520791	"	"	"	"	"	"
	20-22	2991206	5520803	5520792	"	"	"	"	"	"

* Gripper segment only - 3 required for set.

** Gripper complete - Consists of 3 segments, 1 front "O" Ring and 1 back "O" Ring.

*** Gripper Kit - Consists of 3 segments item # 1, and one each of items 2, 3, 4, 5, 6 and 7 shown above.

WARRANTY

Cooper Power Tools, Airetool Operation, warrants this product for one year from the date of shipment against defects in materials and workmanship. For warranty evaluation, contact your local Cooper Power Tool branch office listed below. Materials returned for warranty consideration shall be shipped prepaid to your nearest authorized Cooper Power Tools distributor or Cooper Power Tools branch office. If the returned product is found to be covered under warranty, it will be return shipped prepaid via the same method as received.



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